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Assessment Report

Concerning Geological and Prospecting Programs

Relating to the following claims

Kimberlite #1	4Wx5N	20 Units	316266
Kimberlite #2	5Nx4E	20 Units	316227
Kimberlite #3	3Wx5S	15 Units	316228
Kimberlite #4	5Sx3E	15 Units	316229
Kimberlite #5	2Wx8S	16 Units	317911
Kimberlite #7		1 Unit	322614

Totalling 87 Units situated along or near to Crossing Creek at Latitude 50 degrees and 5 minutes and Longitude 115 degrees, Fort Steele M.D., 82J2.W regarding work done in 1993.

*50° 05'
114° 59'*

OWNERS: C.B. Newmarch, J.M. Kruszewski, E.E. Gilbert, J. Cook, D. Keffer, each as to one fifth.

AUTHOR: Dr. C.B. Newmarch, P. Eng., P. Geol.

DATE: December 30, 1993

REVISED: August 4, 1994

AR 23213

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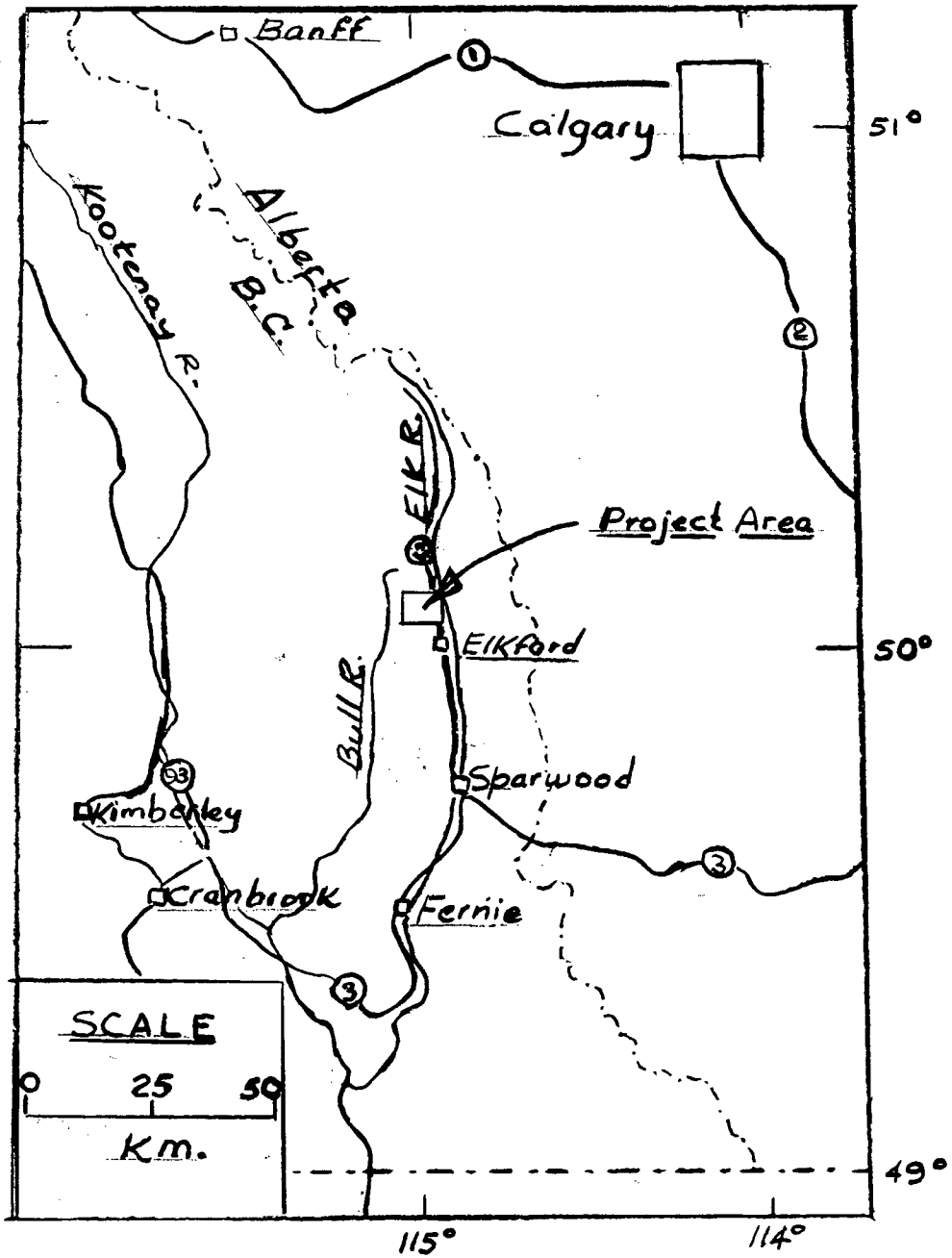


FIG. 1

INDEX MAP

1. INTRODUCTION

This report describes field work undertaken by J. Kruszewski, J. Cook, D. Keffer and C.B. Newmarch along Crossing Creek during the interval July 17 to July 21, 1993 together with the results of literature study, air photo studies and a late Fall Helicopter reconnaissance. Samples taken of selected gravel sites at intervals along Crossing Creek are described. Finally, recommendations for further work to be done in 1994 are set forth.

Access to the project area (See Fig. 1) was obtained by following the main road 5 kilometres upstream from the town of Elkford and thence upstream along a very poorly maintained fire road that follows Crossing Creek for 5.9 kilometres beyond which further progress was made on foot.

Samples of gravel and sand were taken at regular intervals along Crossing Creek, as shown on Figure 2 (in pocket) which illustrates the claim locations. Descriptions of the various samples are given in Section 5 of the report. Because the Cross Kimberlite outcrop is a remnant of a once much larger diatreme that has been eroded by the modern stream, then it follows that if this diatreme contained diamonds, then some of them should be found in the modern stream gravels, providing ample samples are taken and subsequently examined by binocular microscope. Such a program was done in a preliminary way, but larger and more frequent samples need to be taken in future.

2. Qualifications of Personnel and Certification

Dr. C.B. Newmarch, P.Eng., P.Geol., (Alberta) holds a B.A.Sc. degree in Geological Engineering (1941) from U.B.C. and a Ph.D. degree in Geology from Princeton University (1951). He has spent 9 field seasons in B.C. employed by the B.C. Department of Mines in surveys concerned with coal in the Elk Valley and with industrial and metallic minerals. In 1985 he completed the B.C.E.M.R. prospecting course on Vancouver Island. From 1943 to 1972 he was employed primarily as an Exploration Manager for Oil and Gas in Alberta. From 1973 to retirement in 1983 he was Manager of Coal and Industrial Minerals for Westmin Resources. He holds F.M.C. No. 119627 expiring December 31, 1998.

John M. Kruszewski, is a practicing full time prospector who maintains an office at 708A - 805 - 8th Ave. S.W. Calgary, Alberta, T2P3T3. He attended two years of University at the University of Toronto and two years at Mount Royal College in Calgary. He has worked in mineral exploration since 1962 primarily in British Columbia, the Yukon and Northwest Territories.

John was involved for two years in the initial staking and early exploration of the property now known as Baymag Mines, as well as the staking and appraisal of the Aurun Mines perlite property. He did the staking and early testing of a diatomite mine near Kamloops. He served as a field supervisor Gulf Minerals in their B.C. Coal operations. He maintains a membership in the Mineral Exploration Group in Calgary.

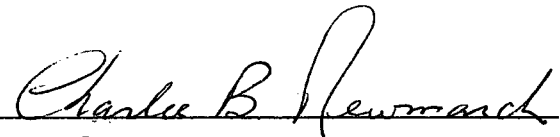
D.C. Keffer, graduated in Chemical Engineering in 1954 from the University of Washington in Seattle, Washington. From 1954 to 1960 he worked as a drilling and production engineer in both the U.S.A. and Canada. From 1960 to 1969 he served as a gas process engineer for Pan American in Calgary. From 1969 to 1975 he worked on several projects for Hudson's Bay Oil and Gas Co. Ltd. In 1975 and until 1983 he was general manager of

Petroleum Royalties Ltd., responsible for all activities in Alberta, Ontario, Ohio and Australia. From 1983 and currently he is President of Ran Developments (1977) Ltd. a privately-owned oil and gas producing company and also President of Sutherland Developments Ltd. which holds a 50% interest in Vernon Kiln and Millwork Ltd. , a producer of finished wood products.

John T. Cook, B.Sc. is a graduate in geology from the University of Alberta (1949) and undertook one year of graduate study (1950) in geophysics. He was employed from 1950 to 1955 by Union Oil of California to carry out surface and subsurface studies in the foothills and front ranges of Northeast British Columbia and Alberta. From 1955 to 1962 he worked for Petrobras doing surface and subsurface appraisals in the Amazon and N.E, Brazil. From 1962 to the present he has served as a free lance explorationist in Ontario and Western Canada. He is the owner and manager of Fleet Resources and has financed numerous mining exploration endeavors in British Columbia.

2.1 Certification

This report succinctly conveys the results of field work and office studies carried out in 1993 in appraisal of the listed Crossing Creek area claims. I believe that the expenditures claimed for the work described is correct and appropriate.


Charles B. Newmarch, P. Eng, P. Geol.



1" = 1/2 Mile
1:31680

FIG. 3

0 ——— 1/2 mi (800 m)

LEGEND

||||| = Kimberlite Pipe

3. Geology

The regional geologic setting of the area is given in Figures 4 and 4b, on which the location of the kimberlite pipe is shown within flat lying Ishbel Group sediments of Permian age. The kimberlite pipe and the surrounding area have been described by various authors, including (1) D. Grieve, (2) J. Pell, (3) D.C Hall et al, and most recently and in great detail by (4) Douglas C. Hall, 1991, in his 536 page Ph.D. thesis " A Petrologic Investigation of the Cross Kimberlite Occurrence, Southeastern British Columbia, Canada, Queen's University, Kingston, Ontario, January 1991 (Copyright 1991)

Hall and others have indicated that the clearly-defined exposure is an erosional remnant that outcrops as a prominent cliff at 2200 metres of elevation on the north side of Crossing Creek. It has been examined in detail by Hall and subdivided into several distinct phases that extend over a horizontal distance of 70 metres and a vertical distance of 15 metres.

The base of the cliff-like exposure is marked by fine-grained sandy material (which might conceal a basal thrust fault) and the eastern margin of the outcrop is bounded by uptilted Permian beds. Several authors imply that this remnant is a part of a thrust block of modest volume with the original root zone lying many miles to the west. However, there is now some evidence that could suggest an alternative theory:-

- (a) On the hillside below the kimberlite outcrop there are large blocks of kimberlite phases not present in the outcrop itself.
- (b) Samples of creek gravels several hundred metres west of the present outcrop contain red-purple garnets suggesting the pipe may have been of oval shape and of considerable size
- (c) Soil on the hillside well east of the outcrop is greenish in color
- (d) Air photos (see Fig. 3) show an irregular contact with the appearance expected for the root zone, not

Kimberlite
Pipe

05'

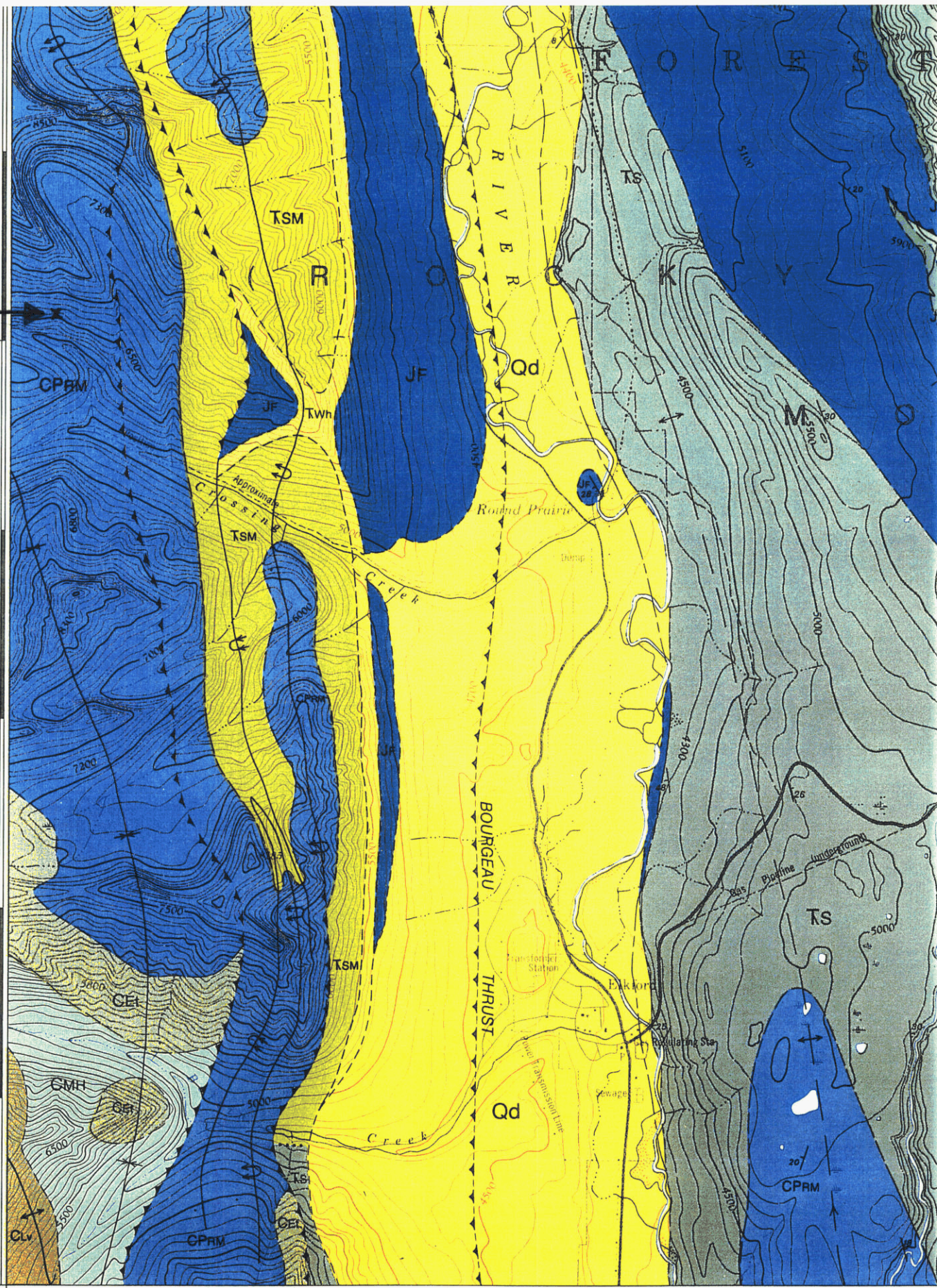
50°00'

115°00'

FIG. 4

55'

Copies of this map may be obtained
from the Geological Survey of Canada:
601 Bath Street, Ottawa, Ontario K1A 0E8



Qd

Till, gravel, sand, silt, and alluvium

CRETACEOUS

UPPER CRETACEOUS

KBK

BELLY RIVER FORMATION: grey and green mudstone, shale, and crossbedded sandstone (nonmarine)

ALBERTA GROUP (KBk - KWp)

KWp

WAPIABI FORMATION: dark grey shale, silty shale, and fine grained sandstone (marine)

KCa

CARDIUM FORMATION: dark grey sandstone and silty shale (marine)

KBk

BLACKSTONE FORMATION: dark grey shale, silty shale, and fine grained sandstone (marine). Structure section only

LOWER CRETACEOUS

KC

CROWNSNEST FORMATION: light grey, alkalic volcanic sandstone, mudstone, and conglomerate (nonmarine)

KBI

BLAIRMORE GROUP: grey and greenish grey mudstone and sandstone; green and maroon, silty mudstone; conglomerate (nonmarine)

KE

KOOTENAY GROUP (JMo - KE)
ELK FORMATION: grey, lithic sandstone, siltstone, and silty mudstone; humic and sapropelic coal; rare conglomerate (nonmarine)

JURASSIC AND CRETACEOUS

UPPER JURASSIC AND LOWER CRETACEOUS

JKMM

MIST MOUNTAIN FORMATION: dark grey siltstone and mudstone; grey, lithic sandstone; black, carbonaceous shale; humic coal; rare conglomerate (nonmarine)

JURASSIC

JMo

MORRISSEY FORMATION: light grey sandstone, locally conglomeratic; carbonaceous shale; coal (nonmarine)

JF

FERNIE FORMATION: dark grey and black shale; grey siltstone and sandstone; limestone; phosphorite (nonmarine)

TRIASSIC

TWh

SPRAY RIVER GROUP (TSM - TWh)
WHITEHORSE FORMATION: calcareous and dolomitic sandstone and siltstone; minor sandy, quartzose dolomite; limestone; solution collapse breccia (marine)

TSM

SULPHUR MOUNTAIN FORMATION: calcareous and dolomitic siltstone and sandstone; silty limestone and dolomite; shale (marine)

CARBONIFEROUS AND PERMIAN

UPPER CARBONIFEROUS AND PERMIAN

PRM

ROCKY MOUNTAIN SUPERGROUP: light grey, quartzitic, dolomitic and calcareous sandstone; dark grey sandstone; silty dolomite; cherty dolomite; chert (marine)

CRMI

CRMS

ISHBEL GROUP and SPRAY LAKES GROUP (structure sections only)

LOWER CARBONIFEROUS

MAP 1824A

GEOLOGY

FORDING RIVER

(West Half)

WEST OF FIFTH MERIDIAN

BRITISH COLUMBIA-ALBERTA

Scale 1:50 000 - Échelle 1/50 000



JURASSIC AND CRETACEOUS

UPPER JURASSIC AND LOWER CRETACEOUS

JKk

KOOTENAY GROUP: undivided (structure section only)

TRIASSIC

Ts

SPRAY RIVER GROUP: undivided; dark grey, silty shale; dolomitic or sideritic, argillaceous limestone

FIG. 4 b

far above creek level.

Hall's thesis comments, of interest to the prospector, include the following (pp 294,295)

"The Cross kimberlite contains garnet peridotite xenoliths and garnet xenocrysts. These represent the only reported garnet-bearing mantle xenolith suite in Western Canada.

The low-calcium G-10 garnet xenocrysts in the Cross Kimberlite represent the first reported occurrence of such garnets in Western Canada. Such low-calcium garnets are commonly regarded as a diamond indicator mineral."

4. Prospecting, Sampling

Field visits to Crossing Creek were made during the intervals July 17 to 21 and during a one day visit on September 8, 1993. An attempt was made, where possible, to collect gravel samples close to bedrock, and all were panned by John Kruszewski who is an experienced panner. The concentrates were initially examined by binocular microscope at the Elkford Hotel in the evenings and subsequently re-examined with greater care on return to Calgary. A fluorescent lamp was applied to each sample and when particles of clear glassy appearance were noted they were checked with a diamond detector (a jeweller's tool). Twelve samples were collected in July and three on September 8th.

Sample S-4, of the south fork of Crossing Creek, contained one pink garnet, some black glass and a fragment of tuff, implying a possible pipe upstream.



FIG. 5

John Kruszewski Panning At
Site #1, Kimberlite Pipe On
The Skyline.

Sample S-11 contained two red to purple garnets and one possible, but not yet confirmed, microdiamond. This sample was subjected to X-Rays and then quickly examined under fluorescent light, showing several small specks that fluoresced dark blue (which may represent tiny microdiamonds).

The 1" to ½ mile air photos were reviewed at various times as the summer season progressed. Several circular or oval-shaped areas, often small lakes were observed, and two of these are now embraced by the Kimberlite 7 and Kimberlite 8 claims which were staked late in the Fall. A circular outcrop in the northern part of Kimberlite #1 claim was overflowed by helicopter and will be field checked in 1994.

It is planned, in 1994, to process larger samples through a vibrating sluice, more particularly in areas close to the Kimberlite slide material.

In the sample descriptions which follow in section 5, it should be noted that samples were taken either close to the current stream, or in road cuts into terrace gravels, as may be seen by the locations in Fig. 2A. In each case one or two heaping pans of gravel were screened and panned with care. Because the Permian Rocky Mountain quartzite which is the source of much of the gravel in Crossing Creek is a rather uniform brown to grey quartzite, then one might expect heavy minerals to be rare, and this is indeed the case. Thus, even a single grain of magnetite, when present, is recorded (as in sample S-1) and a special effort has been made to record "indicator minerals" whenever seen (e.g. purple garnet, diopside, black glass).

5. Sample Descriptions

All of the sample sites were flagged along the Crossing Creek fire road. Their descriptions have been made using a binocular microscope, initially in the evenings at Elkford, but subsequently re-examined with greater care on return to Calgary. Their locations are shown on Fig. 2 and Fig. 2A (In Pocket).

DK-1

1.9 Kms upstream from main road. Coarse pebbles, almost no heavy minerals, no garnets. Predominantly sandstone, quartzite, conglomerate; a few translucent to clear quartz grains.

S-1

Taken from deep hole beside road. The sample required considerable washing because of soil content. Mostly brown to grey-brown volcanic fragmental, considerable brown mica, a few pieces of reddish-purple garnet (larger than those pieces downstream), rare quartz, rare green kimberlite, some white or grey tuff. Unlike samples further downstream by being dominated by diatreme rubble. Some rusty-colored volcanics. Some of the sample has the appearance of a puffy light-weight aggregate; some brown to grey quartzite.

S-2

5.9 Kms upstream. Interesting sample, lots of quartz particles but a few small particles look like broken glass but are too small for identification with the diamond detector. Of the shiny items, some are calcite, some are quartz. One red-brown almandine garnet.

S-2b

Similar to S-2, several small particles look like broken glass with one of them being octagonal in shape and brilliant.

S-3

Taken just above the junction with the South Fork of Crossing Creek. Mostly coarse quartzite and quartz but with a few small glassy and shiny particles.

S-4

Taken from the South fork of Crossing Creek. Sample is light-colored and quartz-rich; only two small glassy particles. One per cent is a rust-colored rock; minor black chert, one black glass particle, one pale pink garnet, several tiny glassy particles. Some 20% is a fine-grained brownish grey quartzite. Several large reddish-brown garnets (almandine), one fragment of whitish tuff.

S-5

Light-colored sample, a few tiny glassy bits especially at high power.

S-6

Also a light-colored sample, somewhat more tiny glassy particles than in S-5.

S-7 Taken from a private sand pit on the road north of Sparwood for comparison with the samples from Crossing Creek. The sample is light grey, mostly quartz but with some variable light and dark grains, bits of coal; some shiny glassy particles not unlike those seen in the samples along Crossing Creek.

S-8 Greyish salt and pepper sand, medium to coarse-grained, lots of grey quartz. Several small glassy particles.

S-9 Similar to S-8, but slightly coarser and dustier.

S-10 Yellow to yellow-orange appearance, fine conglomerate with a few clear glassy fragments; minor black chert, mostly yellowish-grey fine to medium quartzite or quartzite conglomerate.

S-11 The sample was taken just above bedrock at 5.9 kms upstream. It is yellowish-grey in appearance with a fair amount of black chert, mostly quartz and quartzite. There are numerous small glassy chips; two garnets, one is dark ruby-red and one is reddish-purple. One small fragment was removed and placed in bottle #1 for further study because of its shape and sharp edges (possible micro-diamond)

S-12 Grey to yellowish grey in appearance, a lot of quartz, a few small glassy particles one of which breaks up light into red and green colors.

S-13 Taken from deep hole below the road, fine to medium quartz grains, several red-purple garnets, one magnetite grain which is black and shiny, many small glassy quartz particles, a few bits of kimberlite, some black chert.

S-14 Taken at base of the slide. Fine to very fine quartz sand, rare black chert, two pieces of kimberlite, one red-purple garnet, lots of small glassy particles.

CCW Taken west of slide below the road. The host rock is a muddy dark grey volcanic grading to greenish, many garnets purple to reddish-purple, rounded phlogopite grains, rare diopside, some red soft copper-colored mineral (like dried paint), minor quartz, considerable black glass, minor crumbly red haematite.

CCB

Taken directly below the slide. Much more quartz than in CCW, the quartz is rounded, the volcanics are both black and green kimberlite, the garnets are purple and smaller than in CCW; minor black glass.

CCE

Dark muddy-looking volcanics, almost no quartz, several purple garnets, some red haematite-stained black volcanic, a few rounded phlogopite grains.

6. Conclusions and Recommendations

The initial panning exploration program has given some encouragement towards the possible finding of diamonds in or near (or in the modern gravel of) the Crossing Creek area. Larger volumes of gravel need to be processed along Crossing Creek. Further field work should be done to assess other sites that look like pipes on the aerial photos.

One or more samples should be sent to a specialized laboratory for microdiamond identification.

7 Expenditures

C.B. Newmarch

Vehicle Expense 340 Kms @ 20¢	\$68.00	
Vehicle rental 5 days @ \$30.00	150.00	
Meals 5 days @ \$30.00	150.00	
Salary 5 days @ \$400.00	2000.00	
Hotel 4 nights	138.00	
	<u>2506.00</u>	Sub.

J. Kruszewski

Vehicle Expense 340 Kms @20¢	\$68.00	
Vehicle rental 5 days @\$30.00	150.00	
Meals 5 days @ \$30.00	150.00	
Salary 5 days @ 150.00	750.00	
Hotel 4 nights	138.00	
Pump for sluice	450.00	
	<u>1706.00</u>	Sub.

J. Cook

Vehicle Expense 340 Kms @20¢	\$68.00	
Vehicle rental 5 days @\$30.00	150.00	
Meals 5 days @ \$30.00	150.00	
Salary 5 days @\$400.00	2000.00	
Hotel 4 nights	138.00	
	<u>2506.00</u>	Sub.

D. Keffer

Vehicle Expense 340 Kms @ 20¢	\$68.00	
Vehicle Rental 2 days @ \$30.00	60.00	
Salary 2 days @ \$400.00	800.00	
Hotel 1 night	40.00	
	<u>1028.00</u>	Sub.

Field Visit 09-08-93

J. Kruszewski and C.B. Newmarch - to meet Government representatives on Crossing Creek and to take three more samples below and west of the slide from the Kimberlite outcrop.

Vehicle Expense 340 Kms @ 20¢	\$68.00	
Vehicle rental 1 day@ \$30.00	30.00	
Meals, 1 day 2 people	60.00	
Salary, J. Kruszewski 1 day	150.00	
Salary, C.B. Newmarch 1 day	400.00	
	<u>708.00</u>	Sub.

Field Visit - by Helicopter - 17-10-93

Highland Helicopter Fee, 1.9 hours \$1495.30		
50% to Geological Assessment	\$747.65	
J. Kruszewski Salary \$150 x 50%	75.00	
Assistant to J.Kk Salary \$100 x 50%	50.00	
Meals 2 people 1 day \$60.00 x 50%	30.00	
	<u>902.65</u>	Sub

Binocular Examination of Samples by C.B. Newmarch
at \$100.00 per hour.

July 23	5 hours	\$500.00
July 24	1 hour	100.00
July 25	1½ hours	150.00
July 26	1½ hours	150.00
July 28	1½ hours	150.00
July 30	1 hour	100.00
Aug. 5	1½ hours	150.00
Aug. 7	4 hours	400.00
Aug. 9	1 hour	100.00

Aug. 16	2 hours	\$200.00	
Aug. 18	1 hour	100.00	
Aug. 20	1 hour	100.00	
Sept. 12	1½ hours	150.00	
		<u>\$2350.00</u>	Sub.

Miscellaneous Charges

12-31-92	EM&R Canada- Topo Maps	\$17.12	
04-23-93	College Copy	3.00	
12-04-93	Color Copies for report	5.51	
04-20-93	Copies	1.40	
04-20-93	College Copy	6.93	
04-22-93	EM&R Maps	8.56	
23 April 93	Map World Topos	17.50	
April 28-93	Copy Cellar	9.63	
April 30-93	Copy Cellar	6.42	
05-14-93	Neville Crosby, Field Books	9.10	
June 16-93	Wild Rose Geol Service, Bottles	9.95	
June 28-93	Rileys Map prints	5.35	
Sept 14-93	Rileys Enlargements	21.83	
Dec 2-93	Rileys Map Enlargements	24.08	
Dec 20-93	Rileys-Map Enlargements	42.00	
		<u>\$237.53</u>	Sub.

Grand Total

\$11,944.18

8. References

1. Grieve, D.A. 1980: Petrology and Chemistry of the Cross Kimberlite (82J2) In: Geology in British Columbia, 1977-1981, British Columbia Ministry of Energy Mines and Petroleum Resources, pp 34-41.
2. Pell, J., Alkaline Ultrabasic Rocks in British Columbia: Carbonatites, Nepheline Syenites, Kimberlites, Ultra Ultramafic Lamprophyres and Related Rocks; Open File 1987-17, pp 87-89
3. Hall, D.C., Helmstaedt, H., and Schulze, D.J, 1986. The Cross diatreme: a kimberlite in a young orogenic belt. In Extended Abstracts, Fourth International Kimberlite Conference, Perth, Western Australia, Geological Soc. of Australia Abstracts #16, pp 30-32
4. Hall, Douglas Charles, 1991; A Petrological Investigation of the Cross Kimberlite Occurrence, Southeastern British Columbia, Canada: Ph.D. Thesis submitted to Queen's University, Kingston, Ontario, Canada and copyright Douglas Charles Hall, 1991

0 2 Kms.
SCALE 1/20,000

KIMBERLITE 1

KIMBERLITE 2

FIG. 2

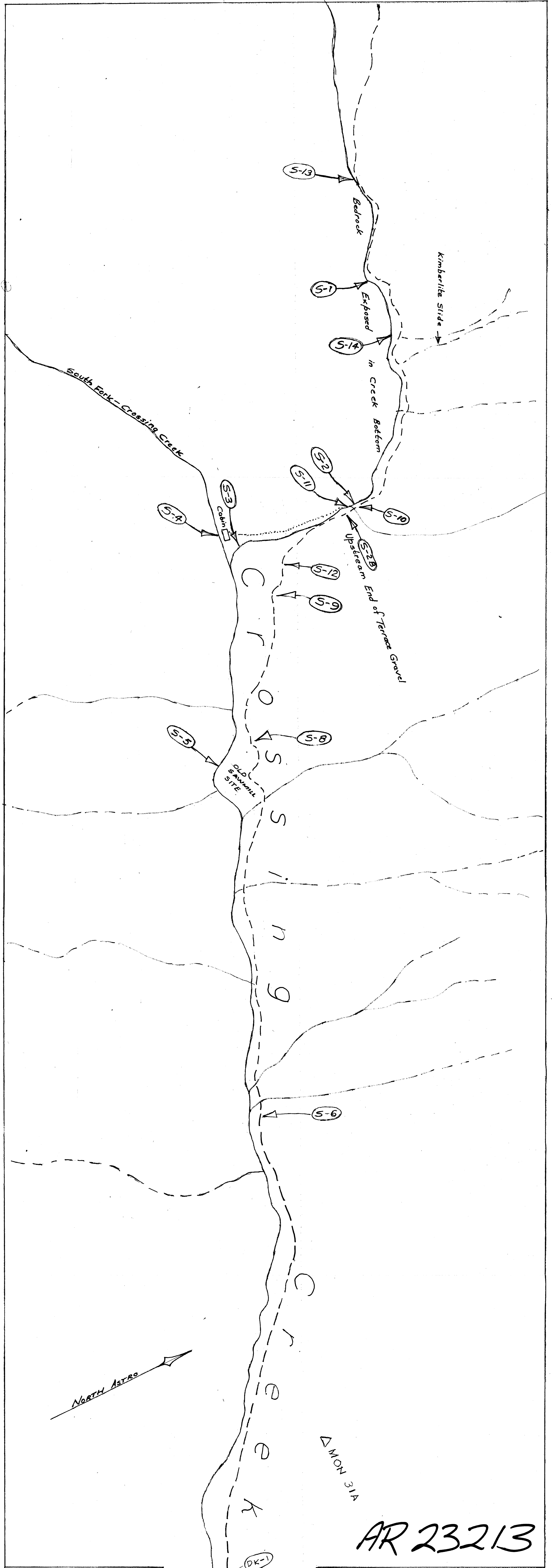


50°

AR 23213^{115°}

LEGEND
S-2 = Pan Sample Location

FIGURE 2
CLAIMS MAP SHOWING SAMPLE SITES



LEGEND

- (S-1) Sample Site
- Stream
- Road, Trail

FIG. 2A

SAMPLE LOCATIONS

MAP

0 100 200 300 400 500 m

SCALE 1:5000 JULY 20, 1994